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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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06/03/2003

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EXAMINER

TELLER, ROY R

ART UNIT

PAPER NUMBER

1654

DATE MAILED: 06/03/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,533

Applicant(s)

APPELS ET AL.

Examiner

Roy Teller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a).--In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 17-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 & 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

This office action is in response to Paper No: 8, received 5/5/03, for claims 1-27, in which applicant elected species I- high molecular weight glutenins, species II- modified protein designated ANG/SBD/Cys7Cys 236, and species III- SEQ ID NO:19, which relates to the C-hordein base protein ANG/SBD/Cys7Cys 236.

Species III is drawn to an amino acid. Claims 17-22 are drawn to a nucleic acid molecule and a cell containing the nucleic acid molecule. Claims 17-22 are considered non-elected inventions.

Applicant traversed the requirement for the election of species by stating that unity of invention is not relevant to the question of election of species, and further stating that the examiner failed to provide evidence supporting the allegation that any alleged species fails to make a contribution over the prior art. The examiner contends that unity of invention is relevant to the election of species as sent forth in Paper # 6, page 4, third paragraph. Examiner further contends that evidence supporting the election of species is set forth in Paper # 6, page 3, last paragraph.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-16 and 23-27 will be examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4, 6, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 11 recite "...the modified protein the ability to bind a ligand **or other macromolecule...**" this is indefinite as to the metes and bounds of what constitutes a macromolecule which binds to the modified protein.

Claims 1 and 11 recite an amino acid "domain", this is indefinite as to the metes and bounds of what constitutes the domain. The instant specification, page 3, lines 22-26, recites that incorporating exogenous amino acid sequences (domains) from other proteins other than glutenins or seed storage proteins into glutenin or seed storage proteins modifies the general properties of gluten. This fails to define what the domain is.

Claim 4 recites "... an enhanced ability...", this is vague and indefinite for failing to specify/clarify the enhancement over what?

Claim 6 recites "... lipid-binding regions...", this is indefinite as to the metes and bounds of these regions as they are not disclosed in the instant specification.

Claims 2, 3, 5, 7-10, 12-15 and 23-27 are included in this rejection for depending upon a rejected claim.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 8-12, 15-16, 23-24, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (WO 98/08607) in view of Entwistle (Plant Molecular Biology, 1991 vol. 17, #6, pp. 1217-1231).

The claimed invention is drawn to a method of producing a modified glutenin or seed-storage protein, the method comprising adding to the protein an exogenous amino acid domain which confers to the modified protein the ability to bind a ligand or other macromolecule, wherein the modified protein has an ability to incorporate into gluten.

Anderson teaches methods and compositions for producing wheat dough using flour milled from seed containing non-natural high molecular weight (HMW) glutenin subunits, see page 3, lines 5-6, and 9-10. Anderson, teaches a high molecular weight glutenin subunit comprises an N-terminal domain including a cysteine residue capable of forming an intramolecular disulfide bond with another high molecular weight glutenin subunit and a C-terminal domain, also including a cysteine residue capable of forming intramolecular disulfide bonds, see page 4, lines 20-23 and 25-27. Anderson teaches the use of such dough in products such as breads and noodles, see page 3, lines 6-7. Anderson does not teach the use of this method with barley.

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Entwistle teaches C-hordein genes from barley, see title. Entwistle discloses a C-hordein polypeptide with an amino acid sequence that is 261 residues long, see abstract. This polypeptide has a 91.7% query match (GenCore version 5.1.4, result # 1, page # 1) with C-hordein base protein ANG/SBD/Cys7Cys 236 (as it relates to SEQ ID NO:19) of the instant application.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have combined the method of Anderson with the method of Entwistle in order to alter dough viscoelasticity with modified glutenins, because Anderson teaches that the invention provides methods and compositions for producing dough, preferably wheat dough, see page 3, lines 5-6, but, absent evidence to the contrary, barley would be included in this dough category.

Conclusion

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roy Teller whose telephone number is (703) 305-4243. The examiner can normally be reached on Monday-Friday from 5:30 am to 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback, can be reached on (703) 306-3220. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3014.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

RT

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5/30/03

RT

Brenda Brumback
BRENDA BRUMBACK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600